



DUAL BAND FM TRANSCEIVER

# IC-2820H

## ***READY TO GO ON THE ROAD*** ***with D-STAR and GPS*** \* \*Optional UT-123 is required



### ***D-STAR***

*Digital voice mode with GPS receiver\**

*\*Optional UT-123 is required*

### **VHF/UHF Dual Band**

*50W output on both bands*

### **Wideband Receiver**

*With diversity receive capability*



# Quality analog fundamentals, futuristic digital capability now!

## Wideband receiver with simultaneous receive capability

The IC-2820H receives 118–549.995 and 810–999.990MHz\* with dualwatch receiver capability that allows you to receive\* two bands simultaneously (including within a single band). Almost all VHF & UHF communications are available to you!

\* See specifications for receive range coverage.

## Diversity receive capability

If you have two antennas, diversity receive\* capability is useful for mobile operation where the received signal strength changes continuously. Within a single band, the radio compares signal strength from each antenna and chooses the better signal to maintain good sound and receive quality.

\* Available on 127, 136, 146, 375, 440, 500MHz bands in FM, FM-N, DV mode only.

## 50W output power on both VHF and UHF bands

A MOSFET power amplifier provides a powerful 50W on both the 2m and 70cm bands, making this compact rig's signal travel for miles! Output power is selectable in 3 steps.

## User-friendly operation

The large 93×28 mm (3<sup>21</sup>/<sub>32</sub> × 1<sup>3</sup>/<sub>32</sub> in) full dot-matrix display presents an easy-to-read graphi-

cal interface, viewable over a wide angle. Push the "Function" button to call up the assigned functions menu on the display. In addition, tuning knobs and buttons for each band are arranged side-by-side, providing intuitive operation.



Symmetric layout and easy-to-read graphical interface

## Separate controller from main unit

The controller is separated from the main unit for flexible installation. The controller has magnets on the rear panel, allowing you to attach the controller to the main unit or other metal objects. This makes clean and neat installation easy! A 3.4m separation cable, OPC-1663, and a short cable (10cm), OPC-1712, are included.

## 522 memory channels

The IC-2820H has a total of 522 memory channels, 500 regular channels, 2 call channels and 20 scan edge channels. Each memory channel stores tone frequency, skip information and so on. The Dynamic Memory Scan (DMS) system divides these memories into 26 groups, A to Z, and provides easy channel selection. Of course, bank scanning is also possible.

## Band scope function

The band scope function lets you watch conditions near the receiving frequency and visually assists in finding other stations.



## Other features

- ±2.5ppm high frequency stability with TCXO unit
- Green to amber variable display background color
- 104×2 DTCS/50 CTCSS tone squelch operation
- Max. 45 channel/sec. high speed scan capability in programmed scanning mode
- 9600bps packet terminal, mini DIN (6-pin) connector
- Long or short squelch delay
- Automatic attenuator
- FM narrow capability
- Sub-band auto mute function
- 16 DTMF memory channels (24 digits)
- DTMF pager and code squelch function
- Auto power off
- Auto repeater function (USA version only)
- DTMF remote control function (USA version only)
- Weather channel with weather alert function (USA and EXP versions only)

## D-STAR digital voice + GPS receiver (With optional UT-123) D-STAR

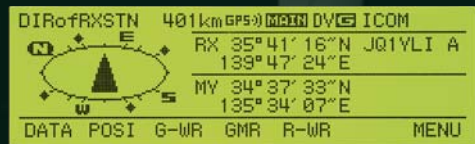


## D-STAR DV mode + GPS receiver

The optional UT-123 provides D-STAR DV mode operation plus GPS receiver capability. Your location information can be sent simultaneously with the digital voice transmission.

## Location information exchange

The IC-2820H sends your location information either when the mic PTT switch is pushed, or at a preset interval (5 seconds–30 minutes). When available from a calling station, the IC-2820H displays the distance and direction to the station.



## GPS alarm

The GPS alarm alerts you by beeping when a preprogrammed point is within 500m or 1km range from your location or anyone of preprogrammed points is within a preset square range.

## GPS location tracking

When connected to a PC\* via the optional RS-232C cable, OPC-1529R, your own or the received location information can be plotted by map software\* on a PC.

\* Serial port and map software (NMEA 0183) are required.

## One touch reply function

The one-touch reply function makes it easy to respond to a calling station instantly. In addition, up to 20 received callsigns are automatically stored as received call records.

## Built-in voice recorder and auto reply function

The built-in voice recorder\* records an incoming call for up to 30-seconds (approx.), (or 15 sec. × 2 tracks, 10 sec. × 3 tracks). The 10 sec. transmit memory allows you to record your callsign or other message, and also automatically answers when you receive a message.

(\* Available in DV mode only)

## Low-speed data communication

When connected to a PC\* via the optional data cable, OPC-1529R, the data communication is available simultaneously with a digital voice transmission.

(\* Serial port and serial communication software are required.)

## DX communication over the D-STAR system

D-STAR repeaters for 144 and 440MHz are now available, allowing cross-band (144/440/1200 MHz) operation and long distance communication via the Internet over the D-STAR system.



## SPECIFICATIONS

## GENERAL

- Frequency coverage (Unit: MHz):

Version	Transmit	Receive
U.S.A.	144-148, 430-450* <sup>1</sup>	(L): 118-549.995 (R): 118-173.995, 375-549.995, 810-999.990* <sup>3</sup>
Australia	144-148, 430-440* <sup>2</sup>	(L): 118-549.995 (R): 118-173.995, 375-549.995, 810-999.990
Export	137-173.995, 400-470* <sup>2</sup>	(L): 118-549.995 (R): 118-173.995, 375-549.995, 810-999.990

(L) means left side receiver, (R) means right side receiver.

\*<sup>1</sup> Tx/Rx guaranteed range, 144-148, 440-450MHz. \*<sup>3</sup> Cellular blocked.

\*<sup>2</sup> Tx/Rx guaranteed range, 144-148, 430-440MHz.

- Mode : FM, AM (Receive only), DV (With UT-123)
- Number of channels : 522 (Including 2 call and 20 scan edges)
- Antenna connector : SO-239 (50Ω) × 2 (Tx/Rx and Diversity)
- Power supply : 13.8V DC ±15%
- Usable Temp. range : -10°C to +60°C; +14°F to +140°F
- Frequency stability : ±2.5ppm  
(-10°C to +60°C on the basis of 25°C)
- Tuning steps : 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50kHz
- Current drain (at 13.8V DC, approx. ) :  
Tx At high (50W) 13A  
Rx Standby 1.2A  
Max. audio 1.8A
- Dimensions (projections not included; W×H×D) :  
Main Unit 150×40×187.7mm; 5<sup>9</sup>/<sub>32</sub>×1<sup>1</sup>/<sub>16</sub>×7<sup>1</sup>/<sub>32</sub> in  
Controller 150×58×31.5mm; 5<sup>9</sup>/<sub>32</sub>×2<sup>9</sup>/<sub>32</sub>×1<sup>1</sup>/<sub>4</sub> in
- Weight (approx.) :  
Main Unit 1.5kg; 3.3lb  
Controller 210g; 7.4oz (with OPC-1712)

## TRANSMITTER

- Output power : 50W, 15W approx., 5W approx.
- Max. frequency deviation : ±5.0/2.5kHz (Wide/narrow)
- Spurious emissions : Less than -60dB
- Microphone impedance : 600Ω (8-pin modular jack)

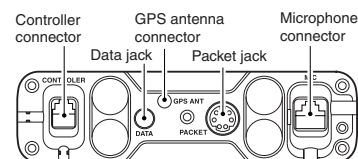
## RECEIVER

- Intermediate frequency :  
Left side receiver 38.85MHz/450kHz (1st/2nd)  
Right side receiver 46.35MHz/450kHz (1st/2nd)
- Sensitivity (Ham bands only) :  
FM (12dB SINAD) Less than 0.18μV  
DV (BER 1% with UT-123) Less than 0.35μV
- Squelch sensitivity : Less than 0.13μV (at threshold)
- Selectivity :  
FM (Wide/narrow) :  
More than 10/6kHz at 6dB  
Less than 30/20kHz at 60dB  
More than 50dB  
DV (With UT-123)  
• Spurious and image rejection :  
Left side receiver More than 60/55dB (VHF/UHF)  
Right side receiver More than 60/60dB (VHF/UHF)
- Audio output (at 13.8V DC) : More than 2.4W  
at 10% distortion with an 8Ω load
- Ext. speaker connector : 2-conductor 3.5 (d) mm (1/8")/8&l

- Receiver sensitivity (Less than; not guaranteed, for your reference only):

FM (12dB SINAD)		
118-159.995MHz* 0.32μV	160-179.995MHz	0.56μV
180-219.995MHz 5.6μV	220-224.995MHz	0.56μV
225-349.995MHz 5.6μV	350-359.995MHz	0.56μV
360-374.995MHz 5.6μV	375-399.995MHz	0.56μV
400-499.995MHz* 0.32μV	500-549.995MHz	0.56μV
810-879.990MHz 0.79μV (1.4μV for USA version)		
880-999.990MHz 1.8μV (3.2μV for USA version)		
(* Except ham bands)		
AM (10dB S/N)		
118-159.995MHz 1.0μV	220-224.995MHz	1.8μV
225-349.995MHz 18μV	350-359.995MHz	1.8μV
360-374.995MHz 18μV	375-399.995MHz	1.8μV

## Main unit front panel view



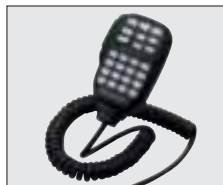
## Supplied accessories:

- Hand microphone, HM-133
- DC power cable, OPC-1132
- Controller cable, OPC-1712 (10 cm; 3.9 in)
- Separation cable, OPC-1663 (3.4 m; 11.2 ft)
- Mounting bracket kit
- Microphone connector plate
- Remote controller bracket
- Microphone hanger
- Spare fuse

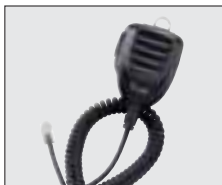
All stated specifications are subject to change without notice or obligation.

## OPTIONS

Some options may not be available in some countries. Please ask your dealer for details.



• **HM-133** REMOTE CONTROL MICROPHONE  
Same as supplied.



• **HM-154** HAND MICROPHONE  
Regular hand microphone.



• **OPC-440** MIC EXTENSION CABLE  
5.0m (16.4ft)



• **OPC-589** MIC ADAPTER CABLE  
Allows you to connect an 8-pin microphone.



• **UT-123** DIGITAL/GPS UNIT  
Provides D-STAR DV mode and GPS capabilities.



• **OPC-1529R** DATA COMMUNICATION CABLE  
Allows you data communication in DV mode and PC cloning with CS-2820.



• **SP-10** EXTERNAL SPEAKER



• **OPC-441** SPEAKER EXTENSION CABLE  
5.0m (16.4ft)



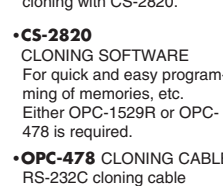
• **OPC-1132, OPC-347** DC POWER CABLES  
OPC-1132: 3.0m (9.8ft);  
OPC-347: 7.0m (23ft)



• **MB-65** MOUNT BASE  
Mounts the remote control head. Angle and direction is adjustable.



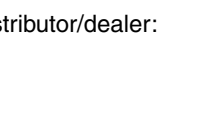
• **OPC-1663, OPC-1712** SEPARATION CABLES  
OPC-1663: 3.4m (11.2ft);  
OPC-1712: 10cm (3.9in)  
Same as supplied.



• **CS-2820** CLONING SOFTWARE  
For quick and easy programming of memories, etc. Either OPC-1529R or OPC-478 is required.



• **OPC-478** CLONING CABLE  
RS-232C cloning cable



• **OPC-474** CLONING CABLE  
Data cloning cable between transceivers.

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